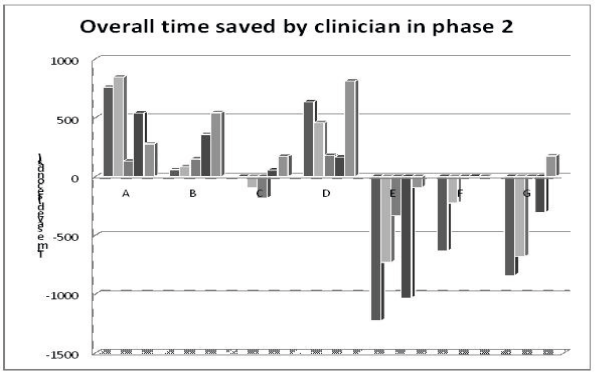
Figure 1:



Conclusions: Use of MIM software failed to improve the conformity level and showed no significant time-saving in this study. Further research and demonstrable benefits are required before it can be incorporated into routine practice for prostate cancer outlining.

EP-1079

Image-guided radiotherapy in prostate cancer: preliminary experience with kV CBCT

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Purpose/Objective: Accurate and reproducible patient (pts) positioning during radiotherapy is necessary for precise dose delivery. The aim of the study was to evaluate target positioning accuracy during prostate cancer (PC) treatment using cone beam CT (CBCT) image-guided localization system (XVI, Elekta) during a few fractions (fr) of radiotherapy.
Materials and Methods: 22 pts with PC were treated in supine position on linear accelerator (Elekta Synergy) equipped with XVI (v.4.2). CBCT was performed according to our protocol on 1,2,3,4,11, 21 and 29 day of treatment. The results of matching the reference planning CT scans with CBCT datasets were represented as translations and rotations in 3 directions: lateral (X), longitudinal (Y) and vertical (Z). However, the table on accelerator allowed correcting translations only.
Results: The translations variations (cm) for the first three fractions were: on 1st fr:-0.06±0.25; 0.19±0.44; -0.11±0.33 in X,Y,Z direction, respectively. On the 2nd fr: -0.01±0.27; 0.16±0.47; -0.23±0.33 and on the 3rd fr: -0.09±0.34;0.14±0.38; -0.19±0.32 along X, Y and Z directions, respectively. The 3D vector was 0.53±0.36; 0.59±0.34; 0.60±0.24 for the 1,2,3 fr respectively. On the 4 fr, after the calculation the mean of translations from the 1,2,3 fr, the X,Y,Zshifts were as follows: 0.9±0.29; 0.01±0.3; -0.09±0.24 with the vector length of 0.44±0.2. During the succeeding fr the following shifts in X, Y, Z direction were evaluated: on the 11th fr 0.05±0.33; 0.00±0.3; 0.04±0.27; on the 21st fr-0.02±0.29; 0.09±0.37; -0.03±0.17 and on the 29th fr -0.13±0.41; 0.07±0.29;0.10±0.27. The magnitude of 3D vector was 0.45±0.23; 0.45±0.22; 0.50±0.21 for the 11,21,29 fr, respectively.
Conclusions: Our protocol seems to be a useful tool for overloaded radiotherapy departments, where performing every day CT-based IGRT is impossible. The greatest discrepancy between target position on reference planning CT and pretreatment CBCT on the accelerator was observed during the first fractions and decreased in the succeeding fr. The CBCT is a useful tool in determining and improving the accuracy of radiotherapy in PC.

EP-1080

Feasibility and prognostic factors for toxicity in prostate cancer patients treated with helical tomotherapy

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Purpose/Objective: New technologies such as intensity modulated and image guided radiation therapy have been shown to decrease acute toxicity for prostate cancer (PC). We present the clinical results and the assessment of prognostic factors of radiation therapy with helical tomotherapy (HT) for clinically localized and recurrent PC, as well as post-prostatectomy adjuvant treatment.
Materials and Methods: From May 2006 to January 2011, 70 cT1-T3 cN0 cM0 PC patients were treated with HT (primary diagnosis, n=48; post-prostatectomy biochemical recurrence, n=15; post-brachytherapy biochemical recurrence, n=2; and post-prostatectomy adjuvance, n=5). The dose prescribed to the prostate ranged between 72-78Gy, except for one case (post-brachytherapy recurrence, 66Gy) with conventional fractionation (2Gy/fraction). The seminal vesicles received between 50-56Gy, the surgical bed 66-74Gy, and the pelvic lymph nodes 46-50.4Gy (n=20), respectively when applicable, with conventional fractionation. Genitourinary (GU) and gastrointestinal (GI) toxicity was scored using the Radiation Therapy Oncology Group (RTOG) scoring system. Potential risk factors for toxicity were assessed in univariate and multivariate logistic regression analysis.
Results: The median age was 68 years (range 51-87 years). The median follow-up was 37 months (range 3-74 months). The mean initial Gleason score was 6 and the mean initial PSA was 17 ng/ml. For patients with a primary diagnosis or those receiving adjuvant HT, median overall survival was 45 months (range, 8-82 months). For patients receiving HT for biochemical recurrence, overall survival was 24 months (range, 3-73 months). Overall, only 3 patients died, and none of them due to a cancer-related cause. Local recurrence was seen in 1 patient which had been treated for a biochemical recurrence after initial prostatectomy. Regional recurrence and bone disease only occurred in one patient with primary intermediate risk PC. The rates of acute grade 2 gastrointestinal (GI) and genitourinary (GU) toxicities were 13% and 10 %, respectively. Only one patient experienced acute grade 3 GU toxicity. The rates of late grade 2 GI toxicities were 1.5%, and those of late grade 2 GU toxicities were 1.2 %. No patients experienced late Grade ≥3 toxicity. Multivariate analysis showed that receiving a rectum mean dose >median (39 Gy) or a bladder median dose >median (46 Gy) was associated with a higher grade of acute GI (OR: 3.53; P =0.017) and GU toxicity, respectively (OR: 5.31; P =0.019). In addition, having an older age was associated with a higher grade of late GU toxicity (OR: 3.94; P =0.026).
Conclusions: This preliminary report confirms the feasibility of HT for prostate cancer. HT is associated with a very low risk of toxicity and a low recurrence rate. Acute and late gastrointestinal and genitourinary toxicities were tolerable without any grade > 3 side effects.

EP-1081

Low rate of lymphedema after pelvic lymphadenectomy followed by pelvic irradiation of node positive prostate cancer

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Purpose/Objective: The aim of the present study was to evaluate the prevalence and severity of lower limb lymphedema after pelvic lymphadenectomy and radiotherapy to the pelvic lymph nodes in patients with prostate cancer.
Materials and Methods: Twenty-six patients underwent combined treatment for high-risk node positive prostate cancer at the department of oncology at Skåne University Hospital between April 2008 and March 2011. The treatment consisted of pelvic lymphadenectomy followed by androgen deprivation therapy and radiotherapy to the pelvic lymph nodes and prostate. The pelvic nodes, prostate and seminal vesicles were treated with external beam radiotherapy (EBRT) to an absorbed dose of 50 Gy followed by a brachytherapy boost of 2*10 Gy to the prostate only. Twenty-two patients accepted an invitation to a clinical examination with focus on lower limb swelling. The time between RT and examination was median 2.4 years (range 1.2-4.1 y).
Results: Six patients (27%) experienced grade 1 lymphedema and two patients (9%) grade 2 while none had grade 3 or 4 according to the CTC Common Toxicity Criteria scale 4.0. Three patients required treatment with compression socks.
Conclusions: Brachytherapy and pelvic EBRT have a low incidence of lymphedema in patients with high risk node positive prostate cancer that have undergone pelvic lymph node dissection. The follow-up time is however short and patients need to be followed for a longer period of time.